Space Weather Forecast

Issued on Friday, 13 May 2022 at 13:15 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: R1-R2 radio blackouts likely. Chance (30%) of Minor geomagnetic storm on day 4 (16th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with an M class flare at 12/2020 UTC, which consisted of a long period flare from the northeast limb and a Coronal Mass Ejection (CME) is apparent in imagery. Analysis shows this CME is non-Earth directed. No other Earth-directed CMEs were observed in the available satellite imagery during the period.
There are currently six sunspot regions on the visible disc. The largest and most complex of these is in the southeast quadrant, however this region has shown signs of decay. All other regions are relatively weak and stable.

Solar Wind / Geomagnetic Activity: The solar wind speed as measured by DSCOVR at L1 has been slow, generally between 300 and 380 km/s. The total interplanetary magnetic field strength started the period moderate but was predominantly weak, likewise the important north-south component was mainly weak. Geomagnetic activity was Quiet to Unsettled (Kp 2-3).

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain Moderate with further R1 or R2 radio blackouts. There is a slight chance of rising to High with R3 activity.

Solar Wind / Geomagnetic Activity: No significant enhancements are likely in the solar wind in the next 3 days, however on day 4 (16th) winds are expected to become elevated due to the arrival of a coronal hole fast wind. Predominantly Quiet geomagnetic activity is expected to become Unsettled to Active on day 4 (16th), with a chance of a G1 / Minor Storm.

Energetic Particles / Solar Radiation: Solar radiation (high energy protons) are currently not expected to exceed thresholds over the next 4 days, although there is an ongoing slight risk.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	70	70	70
Very Active	R3 to R5 X	No	10	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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